

CITY OF WARWICK, RHODE ISLAND FIRE II PENSION FUND ACTUARIAL VALUATION AS OF JULY 1, 2011

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# I. Purpose and Summary

This report presents the results of our July 1, 2011 actuarial valuation of the City of Warwick, Rhode Island Fire II Pension Fund. The valuation was performed at the request of the City of Warwick for purposes of determining the employer and member contribution rates for the City's fiscal years beginning July 1, 2012 and July 1, 2013.

The total contribution level for the 2012-2013 and 2013-2014 fiscal years is 37.00% of covered earnings as compared to 29.83% of covered earnings determined by the previous valuation. In accordance with the City's ordinances, two-thirds of the cost (or 24.67% of earnings) will be met by the City, with the remaining one-third (or 12.33%) contributed by covered active members.

The development of the valuation results is shown in Tables 1 through 7 and is described in more detail on the following pages.

## II. Membership Data

The City furnished data for active members as of December 31, 2010. The data was projected to July 1, 2011 for valuation purposes reflecting anticipated age, salary and benefit increases, but assuming no changes in the number of members. Although we did not audit this data, we did review it for reasonableness and consistency with the data collected for the previous valuation (prepared as of July 1, 2009). Table 4 provides a distribution by age and service for active members. There were three retirees as of December 31, 2010. There were no inactive, nonretired members entitled to a future retirement benefit or a future refund.

## **III.** Plan Provisions

A summary of the principal plan provisions recognized for purposes of the valuation is provided in Table 7. There were no changes to this plan adopted since the last actuarial valuation.

## IV. Assets

The City of Warwick furnished audited financial statements for the fiscal years ending June 30, 2010 and 2011. Tables 3a, 3b, and 3c provide information about the composition of plan assets and the development of valuation assets.

The asset value used in the determination of the annual contribution level is set equal to the market value of assets, adjusted to phase in the difference between actual and expected investment return over five years, at 20% per year. As shown in Table 3c, the market value of assets on June 30, 2011 was \$25,395,021 while the valuation assets were \$24,781,826, or 97.6% of the market value.

As shown in Table 3b, the dollar-weighted rates of return on the market value of assets for FY 2010 and FY 2011 were 13.14% and 20.89%, respectively. These returns are net of all investment and administrative expenses.

## V. Actuarial Methods and Assumptions

There were several changes to the assumptions and methods since the last actuarial valuation. Assumptions such as the annual investment return, mortality tables, payroll growth rate, and salary increase rates were modified based on an experience study presented in April 2011 and adopted by the Board for the Municipal Employees' Retirement System (MERS). Most significantly, the investment return assumption was decreased from 8.25% to 7.50%, and the mortality assumption was modified for continual future increases in life expectancy. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of the City of Warwick, Rhode Island Fire II Pension Fund.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

**GRS** 

# VI. Funding Policy

The plan is funded on an actuarially determined basis in accordance with Sections 20-241 and 20-242 of the City's pension ordinances. Actuarial valuations are performed every two years for the purpose of determining the appropriate annual contribution level as a percentage of covered payroll. The annual cost level determined as of July 1, 2011, when expressed as a percentage of payroll, is the contribution level required by the statute for the two following fiscal years (2012-2013 and 2013-2014). Changes in the rate of City and employee contributions go into effect on the July 1 following the valuation date (July 1, 2012 for the contribution rate determined by this valuation).

The annual contribution level consists of the normal cost with interest plus a 20-year amortization of increases or decreases in the unfunded actuarial accrued liability after inception of the plan. The amortization provides payments that increase annually with the assumed rate of increase in base pay (3.75%). As shown on Table 2, there were two new amortization bases added in this valuation, one related to the experience loss and one related to the assumptions change.

#### VII. GASB 27

The contributions determined by this valuation were determined in accordance with the requirements of Statement No. 27 of the Governmental Accounting Standards Board. That statement requires that governmental plans determine an Annual Required Contribution (ARC) using an amortization period not in excess of 30 years. The plan's contribution, determined in accordance with city ordinances, complies with this requirement. The amortization payment, determined using separate 20, 25 or 30 year periods for each base established historically, is equivalent to an amortization of the entire unfunded actuarial accrued liability over 20.0 years. In other words, 20.0 is the equivalent single amortization period.

The plan's funded ratio—the actuarial value of assets divided by the actuarial accrued liability, is 78.0%, compared to 88.3% in the preceding valuation. The actuarial assumptions and methods used in this report comply with the parameters for disclosure that appear in GASB 27.

**GRS** 

## VII. Analysis of Changes

The plan experienced an actuarial loss of \$1,056,912 over the last two years, which was almost entirely due to the large actuarial loss due to the investment performance not meeting the assumption. In addition, the changes of Actuarial Assumptions added \$3,490,330 to the unfunded actuarial accrued liability, as well as increasing the normal cost.

The following shows a reconciliation of the contribution rate from the prior valuation to the new rate set by this valuation.

Contribution rate set by prior valuation	29.83%
Demographic and payroll changes	(0.47)
Actuarial assumption changes	6.28
Asset loss	<u>1.36</u>
Contribution rate set by current valuation	37.00%

# **VIII.** Future Expectations

We feel it important to point out that due to the asset smoothing methods utilized in determining the contribution requirements, only 40% of the losses from FY2010 and 20% of the losses from FY2011 have been realized in the current contribution requirements. Without significant recovery in the financial markets, the total employer and employee contribution rate is expected to increase towards 33% of payroll over the next few valuations.

The undersigned are available to answer any questions in connection with this valuation of the plan or the information presented in this report.

Sincerely,

Joseph P. Newton, FSA, EA, MAAA

Senior Consultant

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# **Valuation Results**

		J	uly 1, 2011	July 1, 2009	
A. Memb	pership Data				
1. A	Active members				
a	. Number		138		131
b	. Expected covered payroll	\$	9,354,240	\$	8,816,280
c	. Average pay	\$	67,784	\$	67,300
d	. Average attained age		37.3		36.1
e	. Average past service		8.9		7.5
2. R	Retired members and beneficiaries				
a	. Number		5		3
b	. Average benefit	\$	50,276	\$	36,056
c	. Average attained age		43.0		44.6
3. Iı	nactive members				
a	. Number		-		-
b	. Refund	\$	-	\$	-
B. Liabili	ities				
1. A	Actuarial accrued liability				
a		\$	27,248,675	\$	18,760,037
b	. Retired members and beneficiaries		4,534,088		1,918,443
c	. Inactive members		-		-
d	. Total	\$	31,782,763	\$	20,678,480
2. V	Valuation assets	\$	24,781,826	\$	18,265,170
3. U	Infunded actuarial accrued liability [(1)(d) - (2)]	\$	7,000,937	\$	2,413,310
C. Deter	mination of City Contribution				
1. N	Normal cost with interest	\$	2,964,019	\$	2,466,382
2. A	Amortization of unfunded liability (Table 2)	\$	497,196	\$	163,941
3. T	Fotal annual contribution $[(1) + (2)]$	\$	3,461,215	\$	2,630,323
	Contribution as a percentage of covered payroll $(3) / A(1)(b)$		37.00%		29.83%
	City contribution as a percentage of payroll 2/3 x (4)]		24.67%		19.89%
6. N	Member contribution rate [(4) - (5)]		12.33%		9.94%

# **Summary of Amortization Bases**

Date Established	Purpose	Init	ial Amount	Ba	Remaining clance as of uly 1, 2011	An	11 - 2012 nortization ayment*	Years Remaining as of July 1, 2011
7/97	Fresh Start	\$	5,685	\$	3,787	\$	714	6
7/99	Experience Gain		(19,578)		(15,417)		(2,255)	8
7/99	Assumption Change		(602,887)		(474,707)		(69,434)	8
7/01	Asset Method Change		(737,450)		(647,590)		(78,368)	10
7/01	Experience Loss		406,858		357,282		43,237	10
7/03	Plan Amendment		217,561		204,647		21,335	12
7/03	Asset Method Change		(581,788)		(547,256)		(57,052)	12
7/03	Experience Loss		860,490		809,413		84,382	12
7/05	Plan Amendment		495,845		485,953		44,871	14
7/05	Experience Loss		1,143,045		1,120,240		103,438	14
7/07	Experience Gain		(843,406)		(844,031)		(70,436)	16
7/09	Experience Loss		1,988,706		2,001,372		153,281	18
7/11	Experience Loss		1,056,912		1,056,912		75,187	20
7/11	Assumption Change		3,490,330		3,490,330		248,296	20
	Total			\$	7,000,937	\$	497,196	

<sup>\*</sup> Assuming payment made at the middle of the year.

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# Asset Information Composition of Fund as of June 29, 2011

		Market Value	Percentage of Total
1.	Cash and equivalents	\$ 1,146,154	4.5%
2.	Equities, including index funds	13,411,389	52.8%
3.	Fixed income investments	10,881,323	42.8%
4.	Receivables less payables	(43,845)	(0.2%)
5.	Total	\$ 25,395,021	99.9%

# Asset Information Asset Reconciliation and Expected Returns

	FY 2008	FY 2009	FY 2010	FY 2011
1. Beginning of year market value	13,259,986	14,859,195	14,356,013	18,619,738
2. Contributions				
a. City	1,432,908	1,535,840	1,594,677	1,852,264
b. Member	716,454	767,920	797,338	926,132
c. Total	2,149,362	2,303,760	2,392,015	2,778,396
3. Benefits paid	(52,080)	(109,609)	(160,760)	(165,267)
4. Net return	(498,073)	(2,697,333)	2,032,470	4,162,153
5. End of year market value	14,859,195	14,356,013	18,619,738	25,395,020
3. Like of your market value	14,037,173	14,550,015	10,017,750	25,575,020
6. Net market return	-3.48%	-16.90%	13.14%	20.89%
7. Expected market value				
a. Beginning of year	13,259,986	14,859,195	14,356,013	18,619,738
b. Net cash flow	2,097,282	2,194,151	2,231,255	2,613,129
c. Earnings assumption	8.00%	8.00%	8.00%	8.00%
d. Expected earnings	1,144,690	1,276,502	1,237,731	1,594,104
e. Excess/(shortfall)	(1,642,763)	(3,973,835)	794,739	2,568,049

# Asset Information Development of Valuation Assets

1. Market value as of June 29, 2011

\$ 25,395,021

2. Adjustment for investment gain/(loss) to be recognized:

	Period	( Di	investment Gain/(Loss) ifferent than Expected	Gain/(Loss) Not Yet Recognized	E	Adjustment
	06/30/10-06/29/11	\$	2,568,049	80%	\$	2,054,439
	06/30/09-06/29/10		794,739	60%		476,843
	06/30/08-06/29/09		(3,973,835)	40%		(1,589,534)
	06/30/07-06/29/08		(1,642,763)	20%		(328,553)
	Total				\$	613,195
3.	Valuation assets [(1) - (2)]				\$	24,781,826
4.	Actuarial value as a percenta	ige of n	narket			97.6%

# Distribution of Active Members by Age and by Years of Service As of June 30, 2011

Years of Credited Service

						r ears o	i Credited	Service					
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained	Count &												
Age	Avg. Comp.												
Under 25	0	4	0	5	0	0	0	0	0	0	0	0	9
	\$0	\$33,893	\$0	\$56,515	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$46,461
25-29	0	3	0	10	0	1	0	0	0	0	0	0	14
	\$0	\$33,893	\$0	\$56,515	\$0	\$70,483	\$0	\$0	\$0	\$0	\$0	\$0	\$52,665
30-34	0	3	0	3	0	19	0	0	0	0	0	0	25
	\$0	\$33,893	\$0	\$57,059	\$0	\$70,905	\$0	\$0	\$0	\$0	\$0	\$0	\$64,802
35-39	0	0	0	0	0	21	10	2	0	0	0	0	33
	\$0	\$0	\$0	\$0	\$0	\$73,210	\$72,288	\$79,219	\$0	\$0	\$0	\$0	\$73,294
40-44	0	0	0	0	0	11	18	5	0	0	0	0	34
	\$0	\$0	\$0	\$0	\$0	\$71,212	\$72,493	\$73,010	\$0	\$0	\$0	\$0	\$72,154
45-49	0	0	0	0	0	8	2	9	0	0	0	0	19
	\$0	\$0	\$0	\$0	\$0	\$70,483	\$70,808	\$79,038	\$0	\$0	\$0	\$0	\$74,570
50-54	0	0	0	0	0	1	2	0	0	0	0	0	3
	\$0	\$0	\$0	\$0	\$0	\$78,495	\$70,483	\$0	\$0	\$0	\$0	\$0	\$73,154
55-59	0	0	0	0	0	1	0	0	0	0	0	0	1
	\$0	\$0	\$0	\$0	\$0	\$70,483	\$0	\$0	\$0	\$0	\$0	\$0	\$70,483
60-64	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
65 & Over	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	0	10	0	18	0	62	32	16	0	0	0	0	138
	\$0	\$33,893	\$0	\$56,606	\$0	\$71,794	\$72,198	\$77,177	\$0	\$0	\$0	\$0	\$67,784

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# **History of Investment Return Rates**

Year Ending	
June 30 of	Market
(1)	(2)
2000	28.23%
2001	-30.40%
2002	-13.11%
2003	3.75%
2004	13.73%
2005	8.23%
2006	7.71%
2007	14.05%
2008	-3.48%
2009	-16.90%
2010	13.14%
2011	20.89%
Average Returns:	
Last 5 Years	4.58%
Last 10 Years	4.10%

# **Actuarial Methods and Assumptions**

#### **Actuarial Cost Method:**

Entry Age Normal actuarial cost method. Under this method, the normal cost is the amount calculated as the level percentage of pay necessary to fully fund each active member's prospective benefit from entry age to retirement age. The total actuarial accrued liability, which is re-determined for each individual member as of each valuation date, represents the theoretical accumulation of all prior years' normal costs for the active members as if the present plan had always been in effect, plus the liability for any retirees or beneficiaries. The unfunded actuarial accrued liability represents the excess of the total actuarial accrued liability over the valuation assets.

#### **Asset Valuation Method:**

Assets used for the purpose of determining the contribution are equal to the fair market value of assets, adjusted to recognize the difference between actual investment return and expected return over a five year period at 20% per year. Actual return is net of administrative and investment expenses. Expected return is determined based on the assumed investment return rate and the market value of assets, adjusted for contributions received and benefits and refunds paid during the year.

# **Actuarial Assumptions:**

1. Interest

7.50% per year, net of investment and administrative expenses.

2. Salary Increases

The sum of (i) a 4.25% wage inflation assumption (composed of a 2.75% price inflation assumption and a 1.50% additional general increase), and (ii) a service-related component as shown below:

	Police/Fire Employees						
Years of Service	Service-Related Component	Total Increase					
0	10.00%	14.25%					
1	9.00	13.25					
2	6.00	10.25					
3	3.00	7.25					
4	2.50	6.75					
5	2.00	6.25					
6	0.50	4.75					
7	0.50	4.75					
8	0.25	4.50					
9	0.25	4.50					
10 or more	0.00	4.25					

Salary increases are assumed to occur once a year, on July 1. Therefore the pay used for the period year following the valuation date is equal to the reported pay for the prior year, increased by the salary increase assumption. For employees with less than one year of service, the reported rate of pay is used rather than the fiscal year salary paid.

## 3. Mortality

- A. Pre-retirement mortality (combined ordinary and duty):
  - a. Male employees: 115% of the RP-2000 Combined Healthy for Males with White Collar adjustments, projected with Scale AA.
  - b. Female employees: 95% of the RP-2000 Combined Healthy for Females with White Collar adjustments, projected with Scale AA.
  - c. Disabled males 60% of the PBGC Table Va for disabled males eligible for Social Security disability benefits.
  - d. Disabled females 60% of the PBGC Table VIa for disabled females eligible for Social Security disability benefits.
- B. Pre-retirement mortality (combined ordinary and duty):
  - a. Male employees: 75% of RP-2000 Combined Healthy for Males with White Collar adjustments.
  - b. Female employees: 75% of RP-2000 Combined Healthy for Females with White Collar adjustments.

Sample rates are shown below:

Number of Deaths per 100						
Age	Males	Females				
25	0.03	0.02				
30	0.03	0.02				
35	0.04	0.03				
40	0.07	0.05				
45	0.10	0.08				
50	0.15	0.12				
55	0.25	0.19				
60	0.42	0.35				
65	0.83	0.65				
70	1.45	1.14				

# 4. Disability

Sample rates per 1,000 active members are shown below. Ordinary disability rates are not applied to members eligible for retirement.

	Number of Disabilities per 1,000						
Age	Ordinary, Males and Females	Accidental, Males and Females					
25	0.43	2.55					
30	0.55	3.30					
35	0.73	4.35					
40	1.10	6.60					
45	1.80	10.80					
50	3.03	18.15					
55	3.03	18.15					
60	3.03	18.15					
65	3.03	18.15					

## 5 . Termination:

Termination rates (for causes other than death, disability, or retirement) are a function of the member's service. Termination rates are not applied to members eligible for retirement. Rates are shown below:

Service	Termination Rate	Service	Termination Rate
0	0.1000	10	0.0191
1	0.0528	11	0.0166
2	0.0481	12	0.0143
3	0.0436	13	0.0123
4	0.0394	14	0.0105
5	0.0354	15	0.0090
6	0.0316	16	0.0077
7	0.0281	17	0.0067
8	0.0249	18	0.0059
9	0.0219	20	0.0000

# 6. Retirement Age

Rates of retirement are based on an employee's length of service, as follows:

Fire II Members			
Service	Retirement Election		
25	50.0%		
26	16.0%		
27	18.0%		
28	20.0%		
29	20.0%		
30+	35.0%		

7. Benefit and Compensation Limits

Benefit limits under Section 415 and compensation limits under Section 401(a)(17) of the Internal Revenue Code are assumed to have no impact on benefits earned under this plan.

8. Marriage / Dependents

95% of active employees are assumed to be married at retirement or death, with two children ages 11 and 13. Wives are assumed to be three years younger than their husbands. No remarriage is assumed.

9. Service Purchase

None assumed.

10. Administrative and Investment Expenses

None. The 7.50% investment return assumption represents the assumed return net of all investment and administrative expenses.

# **Outline of Principal Plan Provisions**

1. Effective Dates:

a. Original Plan May 29, 1992.

2. Eligibility: All permanent members of the fire department hired on or after

May 29, 1992.

3. Tier: Members who hire by June 30, 2012 are in Tier I, while

members who join later are in Tier II.

4. Final Average Salary(FAC): Tier I: Salary received in the last year of creditable service.

Tier II: Average of the salaries received in the last three years

of creditable service.

For pension purposes, annual salary includes regular, holiday,

and longevity pay.

5. Retirement:

a. Eligibility <u>Tier I</u>: Members who have completed 20 years of service may

retire.

Tier II: Members attain age 50 or older and with at least 25

years of service may retire.

b. Benefit Formula Tier I: The annual benefit at retirement is equal to 50% of the last

year's salary at retirement, plus 2% of average salary for each year of service from 20 to 25, plus 3% of average salary for each

year of service from 25 to 30.

Tier II: 2% of FAC times years of service.

c. Maximum Benefit Tier I: 75% of FAC.

Tier II: 70% of FAC.

d. Commencement Date Retirement benefits commence as of the first payroll period after

retirement.

e. Form of Payment The annual benefit calculated in accordance with the formula in

(b) above is payable semi-monthly for the remainder of the retired member's life, with 67.5% of the member's benefit

payable for the remaining lifetime of his surviving spouse.

#### 6. Vested Termination:

a. Eligibility Upon termination of employment after 10 years of service a

member is eligible for a benefit deferred to retirement age.

b. Benefit Formula 2.5% of average salary multiplied by full years of service at

termination.

c. Commencement Date Benefits commence as of normal retirement age.

d. Form of Payment Same as retirement.

# 7. Disability Retirement:

a. Eligibility A member who is unable to perform active duty as a result of

disability which the Board of Public Safety finds to be permanently incapacitating is eligible to receive disability

retirement benefits.

b. Benefit Formula Service Related (and involving heart, lung, cancer or other Social

<u>Security disabilities</u>) For <u>Tier I</u> members, the benefit would be equal to 66-2/3% of average salary, reduced for each dollar of earned income in excess of the salary the member would earn as an active employee, to a minimum of 50% of salary. For <u>Tier II</u> members, the benefit would initially be the same, but once the member reached 25 years of service, including service while disabled, the benefit would be converted to a regular retirement benefit. (The age 50 minimum for retirement would not apply

to this benefit.)

Other Service Related and Non-Service Related 50% of average

salary.

c. Commencement Date Benefits commence as of the first payroll period after disability.

d. Form of Payment Same as retirement.

d. Tomi of Layment Same as rememen

8. Non-vested Termination of Employment:

A member who leaves employment prior to completing 10 years

of service will receive a lump sum payment of his accumulated

contributions without interest.

# 9. Death Before Retirement -- Survivor Annuity Benefits

a. Eligibility Death while actively employed.

#### b. Benefit Formula

(1) Surviving spouse Service Related. The annual benefit is 50% of the deceased

member's average salary, payable to the surviving spouse until

death or earlier remarriage.

Non-Service Related. 30% of the deceased member's average

salary, payable to the surviving spouse until death or earlier

remarriage.

(2) Surviving children 10% of the deceased member's average salary, payable to each

surviving child until his 18th birthday (or for life if such child

becomes permanently disabled prior to the member's death).

(3) Maximum family death benefit

Service Related. 75% of deceased's average salary.

Non-Service Related. 50% of deceased's average salary.

c. Commencement Date Benefits commence as of the first payroll period after death.

d. Form of Payment Surviving spouse's and children's benefits are payable semi-

monthly.

10. Death Before Retirement
-- Lump Sum Refund of
Contributions

A lump sum payment equal to the member's accumulated contributions without interest shall be paid to the estate of any active member who dies with no surviving spouse or children.

# 11. Retiree Cost-of-Living Increases

<u>Tier I</u>: All benefits in pay status are increased by 3% annually. <u>Tier II</u>: All benefits in pay status are increased by 75% of CPI, annual cap of 3%.

#### 12. Service Purchase

For <u>Tier I</u> member, an active employee eligible to retire who has served in the U.S. armed forces may "purchase" additional years of service up to his number of years of military service, but no more than four years. A member may also purchase up to four years of prior civilian employment time with the City of Warwick. Either purchase would require the employee to contribute to the fund, at retirement, an amount which represents the actuarial equivalent value of the benefit increase purchased. However, the right to buy municipal service would be eliminated for <u>Tier II</u> members.

# 13. Employee Contributions

Members contribute a percentage of their covered earnings (regular, holiday, and longevity) equal to one third of the actuarially determined contribution rate.